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**A STUDY OF CICATRICES, WITH REFERENCE
TO RIGHT- AND LEFT-HANDEDNESS AND
AMBIDEXTERITY.**

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In a rather extensive search through medico-legal literature during the past six months, I have been impressed with the fact that in many cases it has been of great importance to establish whether right- or left-handedness existed, or whether both hands could be used equally well in handling a weapon, pen, or for other purposes. The matter has generally been settled by the production of witnesses, who have testified freely in many cases to a given condition, when an equal number of witnesses has been brought forward who have testified to an opposite condition. It has recently occurred to me that in many cases the question could be better settled by an examination of the prisoner, if such an examination could be obtained, or of the corpse, in case this became desirable, by a study of the cicatrices upon the hands, such as are inflicted by every man who handles tools of any kind, but especially the pocket-knife. Although most left-handed boys are taught to write with the right hand, I believe the knife is commonly handled with the left hand in such cases, and many tools are used in similar manner in various trades. In women the study could not be expected to be of as much value, and still it has proved to be fairly conclusive in many cases. I

presented by the author -

should say further, that in the cases of professional and other men, not much given to the handling of tools, cicatrices may not be found, although in America, as long as the Yankee retains his reputation for whittling upon every possible opportunity, they will be present in most cases, and furnish more conclusive testimony than can be given orally.

I have found these knife-cuts, as one would expect to find them, upon the radial side and dorsum of the forefinger, upon the ulnar side of the thumb, and to a less extent upon the dorsum, particularly about the knuckle, and in many cases upon the radial side and dorsum of the middle finger. It should be stated that, because of the fact that most hands present scars upon some parts of their surface, a decided preponderance of linear cicatrices upon one side should be necessary to justify a conclusion that implements were constantly used in the other hand, and such a preponderance we have found in most of the cases examined. Dr. Catherine F. Hayden has called my attention to the fact, that in women the forefinger of the hand in which the needle is not held shows the marks of the needle, although these would wear away in a short time if sewing were suspended, not being true cicatrices. Dr. J. N. Thomas has also mentioned that he has seen, in the hands of wood-carvers and engravers, in which the tool was not held, the scars of pricks made by the implement in question. Obviously the occupation of the person would have an important bearing in this connection.

The proposition that we should find, in most cases, scars upon the hand not holding the implement seems so reasonable that it should require but little proof; but, more in order to learn in what proportion of cases we should be able to form an opinion, I have collected the following one hundred successive cases,

with the assistance of Drs. Will F. Hassenplug and S. D. Hopkins, who have done very careful work in the examination of the fifty cases which they have contributed to my list, many of which cases they have shown to me.

In the cases in which the cicatrices greatly predominated upon the left hand, generally in a ratio of from four to twelve or fifteen upon this hand to one to four on the right hand, we have simply stated the cases to be right-handed as they have invariably been, while in case the opposite condition existed, the great majority existing upon the right hand, we have called the persons left-handed, without error, excepting as is hereinafter stated in connection with ambidexterity.

The 100 cases were divided as follows :

Males, 88; females, 12.

Right-handed, that is, with such a preponderance of scars upon the left hand that no doubt could exist, 78.

Left-handed, where the opposite condition existed, seven.

Cases without scars enough upon either hand to make a decision possible, eight.

Cases in which the comparatively even distribution of the scars between the right and left hands made the question doubtful, and in which it was correctly assumed, nevertheless, that the person had originally been left-handed, and had since tried to use the right hand, six.

Case in which many scars were found upon both hands, and yet the patient was right-handed, one, our assumption of left-handedness in this case being erroneous.

Thus, of the 100 patients, we may at once throw out eight who had no marks to guide us; and one whose scars were equally distributed, who was right-handed, and six similar cases who were left-handed, leaving 85 cases in which a positive decision was arrived at, in every case this decision having been correct. Further, of the seven cases in which the scars were nearly evenly distributed between the two hands, and which were presumed to be left-handed, six were actually so, so that the seventh subject in

this group was the only one in whose case error really existed.

It must be noted further that many men claim to be right-handed who still use the knife with the left hand, which would presumably indicate that such subjects would use a weapon in attacking another person with the left hand, and especially so as, in times of excitement, it is well known that artificial habits give way to those natural to one in his earliest years. In a very large percentage of cases, one may with great certainty affirm that natural right- or left-handedness exists, and in most of the cases presenting scars upon both hands in approximately equal numbers, is safe in stating that the person was probably originally left-handed, but learned to use the right hand only after having inflicted many cuts upon it through the use of the left, or, possibly, continues to use the left at times. It may prove that, in some occupations, the habitual use of edge-tools in the left hand may call for a modification of these statements.